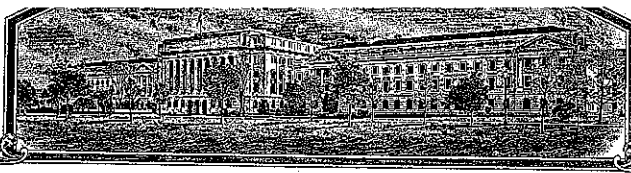


No.

200000179



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

*Western Plant Breeders, Inc.*

*Whereas*, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

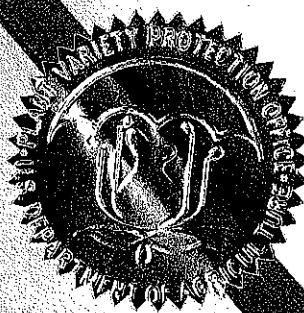
AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'Xena'

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fifth day of February, in the year two thousand two.*



*Attest:*

*P. L. M. Juhl*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Hereman*

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions and information collection burden statement on reverse)

1. NAME OF OWNER  Western Plant Breeders, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME  BZ 594-19		3. VARIETY NAME  Xena	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)  8111 Timberline Drive Bozeman, MT 59718		5. TELEPHONE (include area code)  406-587-1218		FOR OFFICIAL USE ONLY  PVPO NUMBER <b>200000179</b>	
		6. FAX (include area code)  406-586-8247		FILING DATE	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.)  Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION  Arizona		9. DATE OF INCORPORATION  Aug. 24, 1990	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers)  Dr. Dale R. Clark Western Plant Breeders, Inc. 8111 Timberline Drive Bozeman, MT 59718				FILING AND EXAMINATION FEES:  Fees Received: \$ 2450.00 DATE 3/8/2000 CERTIFICATION FEE: \$ 320.00 DATE 1-17-02	
11. TELEPHONE (Include area code)  406-587-1218		12. FAX (Include area code)  406-586-8247		13. E-MAIL  dclark@westbred.com	
14. CROP KIND (Common Name)  Barley		15. GENUS AND SPECIES NAME OF CROP  <u>Hordeum vulgare</u>		16. FAMILY NAME (Botanical)  Poaceae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)			
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no," go to item 22)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER  <i>Dale R. Clark</i>		SIGNATURE OF OWNER  <i>Dan R. Biggerstaff</i>			
NAME (Please print or type)  Dale R. Clark		NAME (Please print or type)  Dan R. Biggerstaff			
CAPACITY OR TITLE  Barley and Wheat Breeder		DATE  March 6, 2000		CAPACITY OR TITLE  V.P./General Manager	
DATE  March 6, 2000					

**GENERAL:** To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable, untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,450 (\$300 filing fee and \$2,150 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$300 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

2000001797

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvp.htm>

## ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
  - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
  - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant MAY NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

Canada, Jan. 11, 2000, application # 00-2107

**NOTES:** It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705. Telephone: (301) 504-8089.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter. Under the PRA of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact the USDA Office of Communications at (202) 720-2791. To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal opportunity employer.

3&T-470 (6-98) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (03-96) which is obsolete.

# BARLEY APPLICATIONS

Crop Kind	Denomination	Trade Name	Applicant	Country	Application Number	Protective Dir. Date	Certificate Number	Grant of Rights Date	Other Status Dates
Barley			Station						
Barley	TR133		University of Saskatchewan	Canada	95-575	1995/06/19	0298	1997/03/17	
	TR139		University of Saskatchewan	Canada	96-857	1996/05/29		//	AA (1999/08/06)
	TR145		University of Saskatchewan	Canada	97-1083	1997/05/27		//	AA (1999/08/06)
	TR159		University of Saskatchewan	Canada	00-2426	//		//	
	TR166		University of Saskatchewan	Canada	01-2704	//		//	
	TR167		University of Saskatchewan	Canada	01-2705	//		//	
	TR229		Agriculture & Agri-Food Canada, Brandon	Canada	94-289	//		//	AW (1995/05/01)
	TR256		Agriculture & Agri-Food Canada, Brandon	Canada	01-2813	//		//	
	TR258		Agriculture & Agri-Food Canada, Brandon	Canada	01-2689	//		//	
	Tercel		Alberta Agriculture, Food & Rural Development	Canada	97-1089	//	0685	1999/11/16	
	Trochu		Alberta Agriculture, Food & Rural Development	Canada	00-2200	//		//	
	Vivar		Alberta Agriculture, Food & Rural Development	Canada	00-2199	//		//	
	Wellington		Pflanzenzucht Oberlinpurg	Germany	94-325	1994/02/04		//	AW (1997/02/10)
	Xena		Western Plant Breeders, Inc.	U.S.A.	00-2107	2000/01/11		//	

**Other Status Code Descriptions:** PDW - Protective Direction Withdrawn, ARF - Application Refused, ARJ - Application Rejected, AA - Application Abandoned, AW - Application Withdrawn  
 RT - Rights Terminated, RS - Rights Surrendered, RA - Rights Annulled, RR - Rights Revoked

"XENA"  
2-rowed spring barley

200000179

**16 a. Exhibit A. Origin and Breeding History**

"Xena" (exp. # BZ 594-19) is a two-rowed spring feed barley that originated from the cross "Stark x Baronesse" made by Western Plant Breeders near Phoenix in March 1992. The F1 was grown near Bozeman, MT in 1992 and F2 seed planted near Phoenix in the fall of 1992. F2 heads were selected in April 1993, threshed and planted as a bulk near Bozeman in May 1993. Individual F3 plants were pulled in the fall of 1993 and planted as 5'x7' plots in the spring of 1994. One of the F4 plots was selected and given the designation BZ 594-19. The F5 thru F7 were tested for yield in Western Plant Breeders' trials in 1995, 1996, and 1997. Throughout the testing of Xena, the primary selection criteria were yield and test weight.

20 heads were selected from the F6 generation in the fall of 1996 and planted near Yuma, AZ in November 1996. Uniform rows were harvested individually in April 1997 and planted as line rows near Bozeman in May 1997. Uniform line rows were harvested individually and 5 of the lines were planted separately near Yuma, AZ in the fall of 1997. The 5 lines were uniform in appearance, and were harvested as a bulk in April 1998. This seed was designated "Breeder's Seed" and used to plant approximately 32 acres near Bozeman in May 1998. This production was harvested in the fall of 1998 and designated "Foundation" seed. Foundation seed was planted in the spring of 1999 to produce Registered and Certified seed. Certified seed will be first available to growers in the spring of 2000.

"Xena" is a stable and uniform variety in appearance and performance across several generations (F6 to F10) and growing conditions. No variants are known to occur.



**16 b. Exhibit B. Statement of Distinctness**

Xena is most similar to the variety Baronesse. However, Xena possesses the “Rpg1” gene (also known as the “T” gene) for resistance to barley stem rust (*Puccinia graminis*) whereas Baronesse does not (and therefore is susceptible).

The above comparisons along with the complete objective description (Exhibit C) show Xena to be a novel variety of barley.



OBJECTIVE DESCRIPTION OF VARIETY  
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Western Plant Breeders, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

8111 Timberline Dr., Bozeman, MT 59718

FOR OFFICIAL USE ONLY

PVP NUMBER

200000179

VARIETY NAME OR TEMPORARY  
DESIGNATION

Xena

Place the appropriate number that describes the varietal character of this variety in the boxes below.  
Place a zero in first box (i.e.  or ) when number is either 99 or less or 9 or less.

## 1. GROWTH HABIT:

 1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER  Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE  
3 = ERECT

## 2. MATURITY (50% Flowering):

 1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

<input type="text" value="1"/> No. of days Earlier than .....	<input type="text" value="8"/>	}	1 = BETZES	2 = CALIFORNIA MARIOUT	3 = CONQUEST	4 = DICKSON
<input type="text" value="2"/> No. of days Later than .....	<input type="text" value="5"/>		5 = PIROLINE	6 = PRIMUS	7 = UNITAN	8 = Baronesse

## 3. PLANT HEIGHT (From soil level to top of head):

 1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

<input type="text" value="0"/> <input type="text" value="0"/> Cm. Shorter than .....	<input type="text" value="5"/>	}	1 = BETZES	2 = CALIFORNIA MARIOUT	3 = CONQUEST	4 = DICKSON
<input type="text" value="0"/> <input type="text" value="5"/> Cm. Taller than .....	<input type="text" value="8"/>		5 = PIROLINE	6 = PRIMUS	7 = UNITAN	8 = Baronesse

## 4. STEM:

 Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm.  Anthocyanin: 1 = ABSENT 2 = PRESENT  
3 = 10 - 15 cm. NO. OF NODES (Originating from node above ground)

<input type="text" value="1"/> Collar Shape:	1 = CLOSED 2 = V-SHAPED 3 = OPEN	<input type="text" value="1"/> Shape of Neck:	1 = STRAIGHT 2 = SNAKY
	4 = MODIFIED CLOSED OR OPEN		3 = OTHER (Specify)

## 5. LEAF:

<input type="text" value="1"/> Basal leaf sheath (seedling):	1 = GLABROUS 2 = PUBESCENT	<input type="text" value="2"/> Position of flag leaf (at boot stage):	1 = DROOPING 2 = UPRIGHT
--	----------------------------	---	-----------------------------

 Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY  
3 = WAXY MM. WIDTH (First leaf below flag leaf) CM. LENGTH (First leaf below flag leaf) Anthocyanin in leaf sheath: 1 = ABSENT 2 = PRESENT

## 6. HEAD:

 Type: 1 = TWO-ROWED 2 = SIX-ROWED Density: 1 = LAX 2 = ERECT (Not dense)  
3 = ERECT (Dense) Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE  
4 = OTHER (Specify) Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY  
3 = WAXY Lateral Kernels Overlap: 1 = NONE 2 = AT TIP  
3 = 1/4 - 1/2 OF HEAD Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED

## 7. GLUME:

 Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA  
3 = MORE THAN 1/2 OF LEMMA Hairs: 1 = NONE 2 = SHORT 3 = LONG Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES  
3 = MORE THAN EQUAL TO LENGTH OF GLUMES Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

## 8. LEMMA:

☒ 5 Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS AWNLESS ON LATERAL ROWS  
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)  
 5 = LONG (longer than spike) 6 = HOODED

☒ 3 Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

☒ 1 Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS

☒ 1 Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE 3 = TRANSVERSE CREASE

☒ 1 Hair: 1 = ABSENT 2 = PRESENT

☒ 2 Rachilla Hairs: 1 = SHORT 2 = LONG

## 9. STIGMA:

☒ 2 Hairs: 1 = FEW 2 = MANY

## 10. SEED:

☒ 2 Type: 1 = NAKED 2 = COVERED

☒ 1 Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT

☒ 4 Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)  
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)

☒ 4 Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED

☒ 1 Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE

☒ 0 2 PERCENT ABORTIVE

☒ 4 7 GMS. PER 1000 SEEDS

## 11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

<input checked="" type="checkbox"/> 1 SEPTORIA	<input checked="" type="checkbox"/> 1 NET BLOTCH	<input checked="" type="checkbox"/> 0 SPOT BLOTCH	<input checked="" type="checkbox"/> 0 POWDERY MILDEW
<input checked="" type="checkbox"/> 1 LOOSE SMUT	<input checked="" type="checkbox"/> 0 BACTERIAL BLIGHT	<input checked="" type="checkbox"/> 2 COVERED SMUT	<input checked="" type="checkbox"/> 2 FALSE LOOSE SMUT
<input checked="" type="checkbox"/> 2 STEM RUST	<input checked="" type="checkbox"/> 0 LEAF RUST	<input checked="" type="checkbox"/> 0 SCAB	<input checked="" type="checkbox"/> 1 SCALD
<input checked="" type="checkbox"/> 0 AY	<input checked="" type="checkbox"/> 0 BSMV	<input checked="" type="checkbox"/> 1 BYDV	<input checked="" type="checkbox"/> 0 OTHER (Specify)

## 12. INSECT: (0 = Not tested, 1 = Susceptible 2 = Resistant)

<input checked="" type="checkbox"/> 0 GREEN BUG	<input checked="" type="checkbox"/> 0 ENGLISH GRAIN APHID	<input checked="" type="checkbox"/> 0 CHINCH BUG	<input checked="" type="checkbox"/> 0 ARMYWORM								
<input checked="" type="checkbox"/> 0 GRASS HOPPERS	<input checked="" type="checkbox"/> 0 CERIAL LEAF BETTLE	<input checked="" type="checkbox"/> 0 OTHER (Specify)									
HESSIAN FLY RACES } <table border="0" style="display: inline-table; vertical-align: middle;"> <tr> <td><input checked="" type="checkbox"/> 0 GP</td> <td><input checked="" type="checkbox"/> 0 A</td> <td><input checked="" type="checkbox"/> 0 B</td> <td><input checked="" type="checkbox"/> 0 C</td> </tr> <tr> <td><input checked="" type="checkbox"/> 0 D</td> <td><input checked="" type="checkbox"/> 0 E</td> <td><input checked="" type="checkbox"/> 0 F</td> <td><input checked="" type="checkbox"/> 0 G</td> </tr> </table>				<input checked="" type="checkbox"/> 0 GP	<input checked="" type="checkbox"/> 0 A	<input checked="" type="checkbox"/> 0 B	<input checked="" type="checkbox"/> 0 C	<input checked="" type="checkbox"/> 0 D	<input checked="" type="checkbox"/> 0 E	<input checked="" type="checkbox"/> 0 F	<input checked="" type="checkbox"/> 0 G
<input checked="" type="checkbox"/> 0 GP	<input checked="" type="checkbox"/> 0 A	<input checked="" type="checkbox"/> 0 B	<input checked="" type="checkbox"/> 0 C								
<input checked="" type="checkbox"/> 0 D	<input checked="" type="checkbox"/> 0 E	<input checked="" type="checkbox"/> 0 F	<input checked="" type="checkbox"/> 0 G								

## 13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

☒ DDT

☒ OTHER (Specify)

## 14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Baronesse	Seed size	Baronesse
Leaf size	Baronesse	Coleoptile elongation	Baronesse
Leaf color	Baronesse	Seedling pigmentation	Baronesse
Leaf carriage	Baronesse		

REFERENCES: The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture. pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

COLOR: Nickerson's or any recognized color fan may be used to determine color of the described variety.

**EXHIBIT E**  
**STATEMENT OF THE BASIS OF OWNERSHIP**

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)  Western Plant Breeders, Inc.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER  BZ 594-19	3. VARIETY NAME  Xena
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)  8111 Timberline Drive Bozeman, MT 59718	5. TELEPHONE (include area code)  406-587-1218	6. FAX (include area code)  406-586-8247
7. PVPO NUMBER <b>2000001797</b>		
8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
9. Is the applicant (individual or company) a U.S. national or U.S. based company? If no, give name of country <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		
10. Is the applicant the original owner? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO If no, please answer <u>one</u> of the following:  a. If original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. national(s)? <input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country  b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company? <input type="checkbox"/> YES <input type="checkbox"/> NO If no, give name of country		
11. Additional explanation on ownership (if needed, use reverse for extra space):		

**PLEASE NOTE:**

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

STD-470-E (07-97) (Destroy previous editions).

Electronic version designed using WordPerfect InForms by USDA-AMS-IMB.